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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/530,994	07/11/2000	KNUT SNORRE BACH CORNELIUSSEN	032292-016	5050

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EXAMINER	
MATTIS, JASON E	

ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 06/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/530,994	CORNELIUSSEN, KNUT SNORRE BACH	
	Examiner	Art Unit	
	Jason E. Mattis	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 January 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,6-14,16 and 17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3, 6-14, and 16-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 January 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to the amendment filed on 1/14/05. Due to the amendment, the rejections under 35 USC 112 have been withdrawn. Also due to the amendment, the previous drawing objections have been withdrawn. Claims 2, 4-5, and 15 have been cancelled. Claims 1, 3, 6-14, and 16-17 are currently pending in the application.

Claim Objections

2. Claims 8 and 11-13 are objected to because of the following informalities:

Claim 8 contains the limitation "incrementing of the PCR and the SCR". It is recommend that the limitation be changed to "incrementing of a PCR bucket and an SCR bucket" to more accurately indicated that it is the bucket values that are incremented.

Claim 11 contains the limitations "said threshold value" and "the virtual value". There is no prior mention of a threshold value or a virtual value in claim 11 or claims 9, 3, and 1, which claim 11 depends on. It is recommended that these limitations be changed to "a threshold value" and "a virtual value".

Claim 12 contains the limitation "the threshold value". There is no prior mention of a threshold in claim 12 or in claims 9, 3, and 1, which claim 12 depends on. It is recommended that these limitations be changed to "a threshold value.

Claim 13 contains the limitation "the virtual value". There is no prior mention of a virtual value in either claim 13 or in claims 12, 9, 3, and 1, which claim 13 depends on. It is recommended that the limitation be changed to "a virtual".

Please check all claims for problems similar to the ones noted above

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 3, 6-14, and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duffie et al. (U.S. Pat. 5402412) in view of Ramamurthy et al. (U.S. Pat. 6304551) and Sallberg et al. (U.S. Pat. 5361252).

With respect to claim 1, Duffie et al. discloses a method for controlling the traffic an ATM network so as to maintain the Quality of Service thereof by implementing Usage Parameter control **(See column 3 lines 17-23 and Figure 1 of Duffie et al. for reference to monitoring a stream of events, shaping the stream of events generated by a user, and policing a stream of events at a switch in an asynchronous transfer mode network)**. Duffie et al. also discloses at least one leaky

bucket unit **(See column 3 lines 24-50 and Figure 1 of Duffle et al. for reference to system 10 comprising one or more leak buckets for each virtual circuit in an associated ATM network)**. Duffle et al. further discloses the leaky bucket arranged between an original cell flow of ATM-cells and a switch unit **(See column 3 lines 17-50 and Figure 1 of Duffle et al. for reference to the system 10 shaping cell flow on an ATM network at a switch meaning that there is an input of ATM cells that is shaped before switching the cells to an output)**. Duffle et al. also discloses there being one counter for each bucket per connection **(See column 3 line 63 to column 4 line 6 and Figure 1 of Duffle et al. for reference to memory circuitry 14 storing information relating to each bucket associated with the system 10 including information about a fill level, which is a counter for the bucket)**. Duffle et al. further discloses the counters being incremented and decrement according to predetermined criteria by means of a timer counter means **(See column 5 lines 12-37 and column 6 lines 17-29 of Duffle et al. for reference to function generating circuitry generating an updated fill level by incrementing and decrementing the fill levels according to functions and for reference to equation 1 which determines if an event I has occurred at time t, meaning there is a timer counter means to check if an event I has occurred at given times t)**. Duffle et al. also discloses decrementing the bucket counters at regular intervals but only when there are no arriving cells **(See column 6 lines 17-57 and equations 1-3 of Duffle et al. for reference to if no event has occurred, meaning no cells have arrived at time t, equation 3 being used update the new current fill rate by decrementing the previous fill rate by an emptying**

rate). Duffle et al. further discloses computing real bucket values for a connection when a cell for the connection arrives **(See column 6 line 17 to column 7 line 12 and equations 1-3 of Duffle et al. for reference to computing updated fill levels using equation 3 each time a cell arrives, indicated by an event occurring as shown in equation 1)**. Duffle et al. also discloses that the leaky bucket unit is adapted for calculating whether an arriving ATM-cell is compliant with the traffic contract **(See the abstract of Duffle et al. for reference to making sure a rate of network events does not exceed a predetermined rate, which is a traffic contract)**. Duffle et al. also discloses performing a calculation after having read the connection number of the ATM-cell and thereafter the counter values related to that connection from a counter table **(See column 5 lines 38-61 and Figure 1 of Duffle et al. for reference to address register 32 providing an address to RAM 30, a counter table, for the bucket associated with the requesting virtual circuit, meaning that the a virtual circuit ID or number must be read so that the correct bucket data counter value is read from RAM 30)**. Duffle et al. discloses sending the new computed values to the CT **(See column 5 lines 38-61 and Figure 1 of Duffle et al. for reference to function generating circuitry 20 generating updated fill levels that are stored in RAM 30)**. While Duffle et al. does disclose sending an allow or a hold signal depending on whether the ATM-cell is compliant **(See column 5 lines 38-61 of Duffle et al. for reference to the allow and hold signals)**. Duffle et al. does not specifically disclose that a dual leaky buck arrangement having two buckets in series, which are arranged in

the same process but given different priority, is used. Duffle et al. also does not specifically disclose sending the allow and hold signals to a one cell buffer.

With respect to claim and 3, Duffle et al. does not disclose using two buckets with different priorities arranged in series with the first bucket being a peak cell rate bucket and the second bucket being a sustainable cell rate bucket.

With respect to claim 6, Duffle et al. does not disclose that if the one cell buffer receives a send signal it will pass the cell to a buffer out unit and a new cell can be read.

With respect to claim 7, Duffle et al. does not disclose that if the one cell buffer receives a not send signal then it will read a new cell from the buffer-in unit that overwrites the old cell.

With respect to claim 8, Duffle et al. discloses incrementing of each bucket of each connection is checked at a specific time interval with the incrementing including checking whether there is an ATM-cell waiting to be processed and if there is no cell waiting to be processed, decrementing the bucket state **(See column 6 line 17 to column 7 line 12 of Duffle et al. for reference to checking if an event, such as if an ATM cell has arrived and is waiting to be processed, has occurred at a time interval t as shown in equation 1, and for reference to incrementing the current fill rate if there is a cell waiting and decrementing the fill rate if there is no cell waiting)**. Duffle does not specifically disclose that the buckets that are incremented and decremented are peak cell rate and sustainable cell rate buckets.

With respect to claim 9, Duffle et al. discloses that if a new ATM-cell has arrived, the real value of the bucket is calculated with the real value being placed in the associated CT with the process checking if the real value is greater that the maximum allowed bucket value **(See column 5 line 12-37 and column 6 line 17 to column 7 line 12 of Duffle et al. for reference to if an event has occurred at time t, for example an ATM-cell has arrived, function generating circuitry 20 using equation 3 to update the real value of the fill rate for the appropriate bucket and store the updated value in RAM 30 and for reference to checking if the fill rate, $B_{i,t}$, is greater than the depth of the bucket, D_i, as a part of equation 3)**. Duffle does not specifically disclose that the bucket is a peak cell rate bucket.

With respect to claim 10, Duffle et al. discloses that if the real bucket value is greater than the threshold value the a hold signal is generated and a bucket counter is decremented **(See column 5 lines 38-61 and column 6 line 17 to column 7 line 12 of Duffle et al. for reference to the hold signal and decrementing the fill level)**. Duffle et al. does not disclose sending a not send cell signal to a one call buffer.

With respect to claim 11, Duffle et al. discloses that if the real bucket value is lower than the threshold value then virtual value of the bucket will be incremented by an appropriate increment factor **(See column 4 line 52 to column 7 line 12 of Duffle et al. for reference to if the real bucket value is less than a reference level, using equation 3 to increment the bucket value by an amount, $A_{i,t}$)**. Duffle et al. also discloses that the process will calculate the real value of another bucket which is placed in the associated counter table **(See column 5 line 62 to column 6 line 2 of Duffle et**

al. for reference to using multiple buckets for each channel to monitor multiple rate requirements meaning that a second bucket is used to performing the same process as the first bucket to calculate an updated fill value and store the updated fill value in RAM 30). Duffle does not specifically disclose that the two buckets are a peak cell rate bucket and a sustainable cell rate bucket.

With respect to claim 12, Duffle et al. discloses checking a bucket value against a threshold value and generating a hold signal if the bucket value is greater than the threshold **(See column 4 line 52 to column 7 line 12 of Duffle et al. for reference to if the real bucket value is greater than a reference level, generating a hold signal)**. Duffle et al. does not disclose sending a not send cell signal to a one cell buffer. Duffle also does not disclose using a peak cell rate bucket.

With respect to claim 13, Duffle et al. discloses that if the real bucket value is lower than the threshold value then virtual value of the bucket is calculated **(See column 4 line 52 to column 7 line 12 of Duffle et al. for reference to if the real bucket value is less than a reference level, using equation 3 to calculate the fill rate)**. Duffle et al. does not disclose sending a send cell signal to a one cell buffer. Duffle et al. also does not disclose using a sustainable cell rate bucket.

With respect to claim 14, Duffle et al. discloses that decrementing the buckets includes incrementing the time counter and calculating the virtual value of the buckets after which calculation the process goes to an idle state **(See column 6 line 17 to column 7 line 12 of Duffle et al. for reference to checking if an event has occurred when a timer reaches time t and if an event has not occurred at the time t,**

decrementing the fill rate by the emptying rate, E_l, before and going to an idle state waiting for the timer to reach a new time t). Duffle does not specifically disclose that the two buckets are a peak cell rate bucket and a sustainable cell rate bucket.

With respect to claims 1, 3, 8-9, 11, and 14, Ramamurthy et al., in the field of communications, discloses using a dual leaky bucket with a peak rate leaky bucket and a sustainable rate leaky bucket connected in series **(See column 5 lines 19-28 and Figure 3 of Ramamurthy et al. for reference to the PCR and SCR leaky buckets connected in series).** Using a dual leaky bucket with a PCR bucket and an SCR bucket connected in series has the advantage of allowing an ATM traffic flow to be policed for both a peak rate and a burst data rate so that a single ATM source does not flood system resources causing congestion (See column 1 lines 53-57 of Ramamurthy et al. for reference to a dual leak bucket offering a better means of characterizing variable bit rate traffic as opposed to a single leaky bucket).

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Ramamurthy et al., to combine using a dual leaky bucket with a PCR bucket and an SCR bucket connected in series, as suggested by Ramamurthy et al., with the method of Duffle et al., with the motivation being to allow an ATM traffic flow to be policed for both a peak rate and a burst data rate so that a single ATM source does not flood system resources causing congestion.

With respect to claims 1, 6-7, 10, and 12-13, Sallberg et al. in the field of communications, discloses a one cell buffer receiving signals indicating that a packet is

to be either forwarded or not forwarded and the buffer responding by either forwarding or discarding the packet **(See column 3 lines 31-51 and Figure 2 of Sallberg et al. for reference to buffer 7 receiving signals indicating that a packet should be forwarded or discarded)**. Sending send and not send signal to a one cell buffer has the advantage of allowing the ATM network to individually make a decision about whether to forward or drop each cell one at a time without effecting other cells waiting to be forwarded.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Sallberg et al., to combine sending send and not send signal to a one cell buffer, as suggested by Sallberg et al., with the method of Duffle et al. with the motivation being to allow the ATM network to individually make a decision about whether to forward or drop each cell one at a time without effecting other cells waiting to be forwarded.

With respect to claim 16, Duffle et al. discloses that there is used only a single time counter for all the connections involved **(See column 3 lines 51-62, column 6 lines 17-29, and Figure 1 of Duffle et al. for reference to using a single clock 26 to control the timing of the system 10 by checking if an event I has occurred at time t as shown in equation 1)**.

With respect to claim 17, Duffle et al. discloses that an increment value of a second bucket is varied according to appropriate criteria, and more specifically by setting the increment value to zero possible for using the method as a single leaky bucket **(See column 6 line 17 to column 7 line 12 of Duffle et al. for reference to the**

amount by which fill levels are incremented in the buckets of the system 10 being variable implying that a user of the system may set the variable incrementing amounts to any value, including zero, so that a dual leaky bucket may be used as a single leaky bucket).

Response to Arguments

5. Applicant's arguments filed 1/14/05 have been fully considered but they are not persuasive.

With respect to Applicant's argument that:

> "Applicant has claimed: " a dual leaky bucket arrangement comprising an LDBU (Logical Dual Leaky Bucket Unit) having two buckets in series which are arranged in the same process but given different priority." (emphasis added) In contrast, Duffie discloses a system 10 as including a leaky bucket, to coupling of such systems **in parallel** does not constitute a "dual leaky bucket" as the term is disclosed and claimed by the Applicant."

the Examiner agrees that Duffie et al. does not disclose a dual leaky bucket as claimed; however, this limitation is met by the Ramamurthy et al. reference as shown in the rejections above.

With respect to Applicant's argument that:

> "Although Ramamurthy does disclose two leaky buckets in series, the Examiner has not pointed to any teaching or suggestion in Duffie or Ramamurthy to combine the teachings thereof."

the Examiner respectfully disagrees. The motivation to combine the teachings of references does not have to be expressly stated in the prior art. Section 2144 of the MPEP states:

> "The rationale to modify or combine the prior art does not have to be expressly sated in the prior art; the rationale may be expressly or impliedly contained in the prior art or it may be reasoned from knowledge generally available to one of ordinary skill in the art, established scientific principles, or legal precedent established by prior case law."

In the rejections above, it has also now been shown where Ramamurthy et al. expressly states the advantage of using two leaky buckets in series over using a single leaky bucket (See column 1 lines 53-57 of Ramamurthy et al. for reference to a dual leak bucket offering a better means of characterizing variable bit rate traffic as opposed to a single leaky bucket).

With respect to Applicant's argument that:

> "Third, with respect to the limitations of claim 5 that have been added to claim 1, the Examiner states that Sallberg discloses a one cell buffer. The teaching of Sallberg however, begin by describing the deficiencies of various single and dual leaky bucket methods for monitoring the bandwidth of an incoming stream of data packets or cells. (column 1 line 15 to column 2, line 3. The solution proposed by Sallberg, however, does not describe at all the use of one or more leaky buckets. Thus, it appears that the teaching of Sallberg, in fact, teach away from the combination of

its teachings with a leaky bucket system, much less the system disclosed and claimed by Applicant."

the Examiner respectfully disagrees. Although Sallberg et al. does discuss some deficiencies of prior art leaky bucket systems, the invention disclosed by Sallberg does use a leaky bucket technique (See column 2 lines 6-45 of Sallberg for reference to using count values, which are bucket values, for each transmission line, like the prior art). Therefore, the one cell buffer of Sallberg et al. is disclosed in an analogous type of method to the one claimed and Sallberg does not teach away from using a one cell buffer in a method using a leaky bucket technique.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason E. Mattis whose telephone number is (571) 272-3154. The examiner can normally be reached on M-F 8AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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